

Winterbottom sufficient to justify the retention of the latter name if *africanoides* is used for the dark birds.

ii. The application of the name *harei* Roberts. In my Check List I used this for birds from Windhoek to the Kaokoveld. Macdonald, 1957, Contribution to the Ornithology of Western South Africa, and Clancey have used it for the birds to which I applied *africanoides*, i.e. the population from south of Windhoek to Gordonia and Kuruman. Actually the difference between birds from south and central South West Africa and those from the north-west is very slight, and Winterbottom and Clancey do not agree in their assigning of material from the Okahandja, Outjo and adjacent areas just north of Windhoek. The type locality of *harei* is in fact situated in an area of transition between two rather similar forms. *Harei* as a population is presumably an intergrade about its type locality, and if most writers prefer to use it for the southern birds and *omaruru* for those from further north, I have no difficulty in following them.

iii. The status of *rubidior* White. Clancey, who did not see the original and only specimens doubts that this is a distinct form and suggests that it is probably founded on wandering birds of a darker form from further south. Winterbottom did examine the original series and confirmed its characters. I suspect that Clancey will prove correct but only further collecting at the type locality can settle the question.

The result of the above shifts in the application of three names reconciles the views of Clancey and myself on the treatment of infraspecific variation in the species.

## The eggs of the Giant Cowbird

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Friedmann (1963) devotes a chapter to the Giant Cowbird *Scaphidura oryzivora* (Gmelin) and makes the somewhat startling statement that although this bird is intermediate in size between two of its frequent victims, *Psarocolius decumanus* (Pallas) and *Cacicus cela* (Linnaeus), it lays an egg considerably smaller than either of them.

He further states that *Scaphidura* eggs average 28.6 x 19.2, those of *P. decumanus* 33.8 x 24.1 and those of *C. cela* 32.5 x 24.5 mm. The source of these data is not mentioned. However, neither the data in the literature nor my own records assembled in Surinam corroborate this statement.

*Scaphidura* is intermediate in size between its two hosts. Three female *Scaphidura* collected by me in Surinam weighed 120–140 grms. (mean 129 grms.), 8 female *P. decumanus* 148–167 grms. (mean 157 grms.) and 10 female *C. cela* 62–72 grms. (mean 65 grms.). In all three species the male is considerably larger than the female.

In the literature the following records are available.

The Penard brothers (1910) devote a long section in their book to these three birds and the parasitism of *Scaphidura*.

They state that the eggs of *Scaphidura* found in the nests of *P. decumanus* are of quite a different type than those laid in the nests of *C. cela* which, if true, would be a most interesting fact.

According to them the eggs of the parasite in the nests of *P. decumanus* are white with a few black spots and the eggs laid in the nests of *C. cela* bluish with some black spots and hair-lines.

Hellebrekers (1942, 1945) revised the large egg collection assembled for the Penard brothers in Surinam which is now preserved in the Leiden Museum.

He describes the eggs of *Scaphidura* in nests of *P. decumanus* as white sparingly marked with small and rather large blotches of a blackish colour, rarely dark brown. Often some hair-lines of the same colour and few purplish undermarkings chiefly at the large end.

Seventeen eggs average 35.7 x 24.3 mm. Minimum 32.5 x 24.3 and 33.7 x 22.4 mm. Maximum 40.1 x 24.2 and 37.6 x 25.6 mm. The *Scaphidura* eggs in nests of *C. cela* are, according to him, light bluish or bluish-green, sparingly marked with small or rather large blotches of blackish colour, rarely brown, often some hair-lines of the same colour few purplish undermarkings chiefly at the large end.

Thirty-four *Scaphidura* eggs in nests of *C. cela* average 34. x 25.5 mm. Minimum 31.5 x 24.3 and 34.4 x 23.8 mm. Maximum 35.5 x 27.3 and 35.1 x 29 mm.

The eggs of *P. decumanus* in this collection are described as white with some purplish tinge, with reddish and black spots and hair-lines. In some cases these only a darker shade of the reddish ground colour; in other cases more clearly and boldly marked chiefly at the large end.

Forty-two *P. decumanus* eggs average 36 x 24.5 mm. Minimum 31.5 x 24.6 and 37.4 x 22.4 mm. Maximum 41.1 x 25.8 and 39.5 x 26.6 mm.

The eggs of *C. cela* are described as glossy white with a few black spots.

Fifty *C. cela* eggs average 28.4 x 19.08 mm. Minimum 24.2 x 18.2 and 27.5 x 17.3 mm. Maximum 32.2 x 18.5 and 31.6 x 20.6 mm.

Belcher and Smooker (1937) make some confusing statements about eggs of *Scaphidura* and *P. decumanus* collected in Trinidad. As to the eggs of *Scaphidura* they "incline to the view" that they run through the same varieties of ground colour and markings as *Psarocolius* except that *Scaphidura* lays a white variety which does not appear with *Psarocolius*.

Ten eggs "attributed" to *Scaphidura* by them average 33.5 x 23.7 mm. They further distinguish two types of eggs of *P. decumanus*; those with bluish ground which are spotted and blotched with black and dark brown and those with "other ground colour" which are marked with zigzag hieroglyphs.

In my opinion the bluish eggs are of *Scaphidura* and the type with zigzag hieroglyphs those of the host.

The fact that Belcher and Smooker found bluish eggs with black spots in nests of *P. decumanus* (which I consider to be eggs of *Scaphidura*) is of particular interest through which the theory of the Penard brothers that bluish *Scaphidura* eggs are confined to the host *C. cela* collapses.

Skutch (1954) describes an egg identified by Crandall as spotless white, measuring 36.1 x 26 mm. and an egg supposedly laid by *Scaphidura* from a nest of *Gymnostinops montezuma* as very pale blue with a few scattered scratches of brown, measuring 36.5 x 25.4 mm.

Schäfer (1957) describes an egg attributed to *Scaphidura* as spotless white measuring 34.2 x 22 mm. weight 9 grms.

So far the data from the literature. My own records assembled in Surinam are limited but corroborate the data in the literature.

On March 2, 1950 I examined a colony of *Cacicus cela* of about 30 nests which were not parasitized by *Scaphidura*. The nests contained eggs in all stages of incubation and nestlings of different sizes. The clutch consisted of 1 or 2 eggs (only 10 clutches of 2 eggs) and in no nest were more than 2 nestlings found. The eggs were glossy white with a few blackish spots.

Twenty-two averaged 27.9 x 18.9 mm. The largest measured 30.4 x 19.5 and 28.1 x 20.2 mm. The smallest 25.5 x 18.7 and 27.2 x 17.7 mm. The weight of 6 unblown and fresh eggs averaged 5.43 grms. (extremes 5.9 and 4.72 grms).

On February 20, 1958 I found in a nest of *C. cela* a single egg of *Scaphidura*. It had a bluish ground colour with a few black spots and hair-lines, measuring 33.3 x 24.5 mm. weight 8 grms. I had observed females of *Scaphidura* in this colony from December 27, 1957 onwards. This particular egg was therefore totally different from the eggs of the host not only in colour but also in measurements and it could be distinguished immediately.

As to *Psarocolius decumanus* the situation is more difficult because the eggs of the host and the parasite overlap in size. However, I found in the nests of *P. decumanus* two very different types of eggs. One with a white ground colour very thickly covered with purplish spots and many zigzag lines of the same colour and the other one white with a few small black spots resembling as Hellebrekers (*loc. cit.*) justly remarks, large eggs of the Oriole (*Oriolus oriolus*.)

Two eggs of the white type with a few black spots, slightly incubated and found together in the same nest on January 3, 1964 measured 33.9 x 23.5 and 33.6 x 24.2 mm., both weighing 9 grms. Three fresh eggs of the same white type with a few black spots, found as singles in three different nests on the same date were slightly larger: 35.9 x 23; 36.4 x 24 (11 grms.) and 35 x 24.8 mm. (10.5 grms).

These five are wholly different from three eggs found as singles in three different nests on December 30, 1963. These last eggs have a hardly visible white ground colour being thickly covered with purplish spots and zigzag lines. They measure 35 x 23.7; (10.5 grms); 36.9 x 24 (11 grms) and 35.6 x 23.7 mm.

I attribute the white eggs with black spots to *Scaphidura* and the eggs with purplish zigzag lines to *P. decumanus* and I feel strengthened in this opinion because the eggs of *P. viridis* (a near relative of *P. decumanus*) in the Penard collection are all of the same type (whitish thickly covered with purplish zigzag lines).

Even if we dismiss the eggs attributed to *Scaphidura* in the nests of *P. decumanus* altogether because of their overlapping size (though very different in colour and markings) then the fact remains that the eggs of the parasite in the nests of *C. cela* can be distinguished at once by their larger size.

Therefore the statement by Friedmann about the small size of the parasite's egg is incorrect, as his measurements of *Scaphidura* eggs are too small and those of *Cacicus cela* eggs too large. Apart from the eggs many

more if not most other phases of the brood parasitism of *Scaphidura* remain to be solved.

It seems proven that sometimes more than one egg of the parasite is found in a host's nest.

The statement by the Penard brothers that the eggs of *P. decumanus* are broken or removed by the parasite is not correct. Schäfer (1957) found a nest of *P. decumanus* with one egg of the host and one of the parasite and Goeldi (1894)—who seems to be the first to prove that *Scaphidura* is a brood parasite—found a nestling of the host and a nestling of the parasite together in the nest of *P. decumanus*.

Schäfer (*loc. cit.*) made on August 1, 1954 an even more interesting observation when he saw "without any doubt" ("sans erreur possible") a nestling *Scaphidura* just out of a *P. decumanus* nest being fed by a female *Scaphidura*!

It would be most desirable to keep a colony of *P. decumanus* and *C. cela* under constant observation during a whole breeding season. The trouble is that the nests of *P. decumanus* are mostly inaccessible and that they cannot be inspected without destroying them as they are hanging at the end of side branches of trees and often at a great height.

To inspect the contents of the nests regularly, the building of a movable tower to the same height as the nests would be necessary.

*C. cela* though often building thick clumps of nests in low bushes and trees often has the troublesome habit of nesting near and around wasp nests, sometimes of large size, which keeps even the most persistent observer at a safe distance.

## SUMMARY

The statement by Friedmann (1963) that the Giant Cowbird (*Scaphidura oryzivora*) though intermediate in size between two of its frequent victims *Psarocolius decumanus* and *Cacicus cela* lays an egg which is considerably smaller than either of them is incorrect, as his measurements of *Scaphidura* eggs are too small and those of *Cacicus cela* eggs too large. The eggs of the parasite overlap in size with those of *P. decumanus* apart from differing in markings, but are considerably larger than those of *C. cela*.

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